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TYPIFICATION OF THE LINNAEAN SPECIES OF *ZIZANIA* (POACEAE)

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ABSTRACT

The two species of *Zizania* proposed by Linnaeus, *Z. aquatica* in 1753 and *Z. palustris* in 1771, are lectotypified on available elements. Application of the names for the wild-rices of eastern North America is not altered by this action.

KEY WORDS: *Zizania*, Poaceae, wild-rice, nomenclature

The genus *Zizania* consists of four species, the southern wild-rice, *Z. aquatica* Linnaeus, of eastern North America from Ontario and Quebec, Canada, southward to Florida and Louisiana; the northern wild-rice, *Z. palustris* Linnaeus, of southern Canada from New Brunswick to Manitoba south to New York, Minnesota, and Iowa; Texas wild-rice, *Z. texana* A.S. Hitchc., a narrow endemic in Texas; and Manchurian wild-rice, *Z. latifolia* (Griseb.) Turcz. *ex* Stapf of eastern Asia (Dore 1969).

When Linnaeus (1753: 991) proposed *Zizania*, he based the genus on two species, *Z. aquatica* and *Z. terrestris* Linnaeus. The latter is the Asiatic plant now known as *Scleria terrestris* (Linnaeus) Fassett; it was lectotypified by Fassett (1924: 159) on the Rheede figure cited by Linnaeus (as "based on", Art. 8.3; Greuter *et al.* 1988). This shall not be discussed further.

Linnaeus cited three synonyms when he proposed *Zizania aquatica*: Gronovius (1742, and thus indirectly *Clayton 574*, Virginia, BM, 2 sheets) and two works of Sir Hans Sloane (1696: 33; 1705: 110, t. 67). Linnaeus did not, contrary to Dore (1969: 17), examine either of the Clayton specimens now housed in The Natural History Museum (BM) simply because, as was Gronovius' practice, he sent Linnaeus a duplicate of *Clayton 574* (1119.3, LINN). Unfortunately, we have no direct evidence what Linnaeus might have considered *Clayton 574* (LINN) to represent as he never annotated the specimens (mounted on two sheets but assigned a single number by Savage, 1945). This means that the Clayton material cannot be considered authentic material because

(a) Linnaeus never saw the sheets at BM and (b) he failed to annotate the sheets at LINN. As for the Sloane references, the only authentic element is the Sloane figure (t. 67). The typotype (Stearn 1957) of this illustration, which was never examined by Linnaeus, is *H.S.* 2: 15, 16 (BM-SL). As reported by Hitchcock (1908: 132), the figure was drawn from a specimen of *Phragmites australis* (Cav.) Trim.

Nonetheless, Linnaeus did have an herbarium specimen at hand when he proposed *Zizania aquatica* in 1753. This is 1119.1 (LINN), an otherwise unattributed sheet except for "a sign" (Savage 1945: 171) the meaning of which is unknown. Dore (1969: 17) suggested the symbol represented Gronovius, but on what evidence this conclusion was reached is unknown; neither Jackson (1912) nor Savage (1945) mention it. I have not found the symbol on any sheet I can associate with Gronovius, and I doubt very seriously that 1119.1 is a sheet from Gronovius. The sheet was annotated by Linnaeus with a "1", the *Species Plantarum* number, and "aquatica", the specific epithet he used for the species.

Of the two authentic elements used by Linnaeus to establish *Zizania aquatica*, 1119.1 (LINN) and Sloane (1707, t. 67), I hereby designate 1119.1 (LINN) the lectotype. Although the specimen is thin stemmed and narrow leaved, its identity as southern wild-rice was confirmed by Dore.

The northern wild-rice, *Zizania palustris*, has had a somewhat checkered nomenclatural history. Proposed by Linnaeus (1771: 295) long after he established *Z. aquatica*, the initial assumption was that the two were but a single species. Michaux (1803: 75) took this view when he proposed the superfluous *Z. clavulosa* Michaux, as did Lambert (1804: 264) and Pursh (1814: 60) who, nonetheless, retained *Z. aquatica* as the correct name for the taxon. The rationale for Lambert's action was the close gross morphological similarities exhibited by the two critical specimens in the Linnaean herbarium, 1119.1 and 1119.2. As Hitchcock (1908: 124) would later conclude, both sheets were representative of the northern wild-rice.

All of this resulted in Smith (1819: under *Zizania*) opting to retain *Z. aquatica* for the North American element and to propose *Z. effusa* J.E. Smith for the plant Sloane had illustrated. When Linnaeus (1771) had proposed *Z. palustris* he referred, in synonymy, to a Patrick Browne (1756: 340) name. This, too, was included by Smith in his new species. Not mentioned by Smith in his publication is that he annotated 1119.3 (LINN) "effusa", making what I believe to be *Clayton 574* authentic material as well. Because Smith gave the distribution of his new species as "Common in all of waters, or lagoons, of Jamaica", and his description does not fit *Clayton 574*, I hereby lectotypify *Z. effusa* on the cited Sloane figure (1707: t. 67) rendering the name a synonym of *Phragmites australis*. Fassett (1924) and Dore (1969) made no mention of this species, and Hitchcock (1950: 980) attributed the name, incorrectly, to Munro (1862: 52).

As to the type of *Zizania palustris*, the only authentic element found is 1119.2 (LINN), the sheet annotated "Zizania" and "H U" by Linnaeus. This caused Hitchcock (1908: 124) to remark that no specimen in the Linnaean herbarium was identified with the species. Fassett (1924: 127), following Hitchcock (1906: 210) referred the specific epithet to *Z. aquatica* var. *angustifolia* A.S. Hitchc. without typifying the name. Dore (1969: 18) considered 1119.2 to be a "type" and a "classical specimen" (p. 19) of *Z. palustris*; I hereby specifically designate 1119.2 the lectotype of the name.

Typification of the two Linnaean names does not alter their current circumscription.

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LITERATURE CITED

Browne, P. 1756. *The Civil and Natural History of Jamaica in Three Parts.* Privately published, London, U.K.

Dore, W.G. 1969. Wild-rice. Canad. Dept. Agric. Publ. 1393:1-84.

Fassett, N.C. 1924. A study of the genus *Zizania.* Rhodora 26:153-160.

Greuter, W., H.M. Burdet, W.G. Chaloner, V. Demoulin, R. Grolle, D.L. Hawksworth, D.H. Nicolson, P.C. Silva, E.G. Voss, & J. McNeill (eds.). 1988. *International Code of Botanical Nomenclature Adopted by the Fourteenth International Botanical Congress*, Berlin, July-August 1987. Regnum Veg. 118.

Gronovius, J.F. 1742. *Flora Virginica.* Part 2. C. Haak, Leiden, The Netherlands.

Hitchcock, A.S. 1906. Notes on grasses. Rhodora 8:205-212.

_____. 1908. Types of American grasses: A study of the American species of grasses described by Linnaeus, Gronovius, Sloane, Swartz, and Michaux. Contr. U.S. Natl. Herb. 12:113-158.

_____. 1950. *Manual of the Grasses of the United States*, ed. 2, revised by A. Chase. U.S.D.A. Miscell. Publ. 200:1-1051.

Jackson, B.D. 1912. *Index to the Linnean Herbarium.* Taylor and Francis, London, U.K.

Lambert, A.B. 1804. Observations on the *Zizania aquatica.* Trans. Linn. Soc. London 17:264-265.

Linnaeus, C. 1753. *Species Plantarum.* L. Salvius, Stockholm, Sweden.

_____. 1771. *Mantissa Plantarum Altera.* L. Salvius, Stockholm, Sweden.

Michaux, A. 1803. *Flora Boreali-americana.* Vol. 2. C. Crapelet, Paris, France.

Munro, W. 1862. On the identification of the grasses of Linnaeus's herbarium, now in the possession of the Linnean Society of London. Trans. Linn. Soc. London 8:33-55.

Pursh, F. 1814. *Flora Americae Septentrionalis.* White, Cochrane, and Co., London, U.K.

Savage, S. 1945. *A Catalogue of the Linnaean Herbarium.* Linnean Society of London, London, U.K.

Sloane, H. 1699. *Catalogus Plantarum quae in Insula Jamaica Sponte Proveniunt.* D. Brown, London, U.K.

_____. 1705. *A Voyage of the Islands Madera, Barbados, Nieves, S. Christophers and Jamaica.* Vol. 1. Longman, Hurst, Rees, Orme, & Brown, London, U.K.

Smith, J.E. 1819. *Zizania. Cyclop.* 39: unpaged.

Stearn, W.T. 1957. An introduction to the *Species Plantarum* and cognate botanical works of Carl Linnaeus. In, C. Linnaeus, *Species Plantarum*, Ray edition. London, U.K.